

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.

AMENDMENT

Serial Number: Unknown

Page 2

Dkt: 900.175US2

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

51
75.

A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ^{49 50}73 or 74.

52
76.

A seed comprising the isolated nucleic acid of claim ^{49 50}73 or 74.

53
77.

A plant comprising the isolated nucleic acid of claim ^{49 50}73 or 74.

54
78.

The plant of claim ⁵³77, which plant is soybean; maize; sugar cane; beet; tobacco; wheat; barley; poppy; rape; sunflower; alfalfa; sorghum; rose; carnation; gerbera; carrot; tomato; lettuce; chicory; pepper; melon; cabbage; oat; rye; cotton; flax; potato; pine; walnut; citrus; hemp; oak; rice; petunia; orchids; Arabidopsis; broccoli; cauliflower; brussel sprouts; onion; garlic; leek; squash; pumpkin; celery; pea; bean; strawberries; grapes; apples; pears; peaches; banana; palm; cocoa; cucumber; pineapple; apricot; plum; sugar beet; lawn grasses; maple; triticale; safflower; peanut; or olive.

55
79.

The plant of claim ⁵³77, which is soybean.

56
80.

The isolated nucleic acid of claim ^{49 50}73 or 74, which further comprises gag, pol and env genes and which comprises adenine-thymidine-guanidine as the gag gene start codon.

57
81.

The isolated nucleic acid of claim ^{49 50}73 or 74 that further comprises SEQ ID NO:4.

58
82.

A plant cell comprising an isolated nucleic acid molecule of claim ⁵⁷81.

59
83.

A seed comprising an isolated nucleic acid molecule of claim ⁵⁷81.

60
84.

A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁵⁴80.

AMENDMENT

Serial Number: Unknown

Page 3

Dkt: 900.175US2

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

⁶¹
85. The isolated nucleic acid of claim ⁴⁹73 or ⁵⁰74, wherein said nucleic acid encodes at least a portion of a plant envelope sequence and comprises a nucleic acid sequence selected from the group consisting of:

- A² cont'd*
Rule 1.126
- (a) a nucleic acid sequence that has at least 50% identity to SEQ ID NO:5, wherein said identity can be determined using the DNAsis computer program and default parameters;
 - (b) a nucleic acid sequence having SEQ ID NO:5;
 - (c) a nucleic acid sequence that encodes an amino acid sequence that has at least 30% identity to SEQ ID NO:6, wherein said identity can be determined using the DNAsis computer program and default parameters;
 - (d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:6; and
 - (e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); and a nucleic acid sequence of (d).

⁶²
86. A plant cell comprising an isolated nucleic acid molecule of claim ⁶¹85.

⁶³
87. A seed comprising an isolated nucleic acid molecule of claim ⁶¹85.

⁶⁴
88. A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁶¹85.

⁶⁵
89. The isolated nucleic acid of claim ⁴⁹73 or ⁵⁰74, wherein said nucleic acid encodes at least a portion of a plant integrase sequence and comprises a nucleic acid sequence selected from the group consisting of:

- (a) a nucleic acid sequence that has at least 70% identity to SEQ ID NO:9, wherein said identity can be determined using the DNAsis computer program and default parameters;
- (b) a nucleic acid sequence having SEQ ID NO:9;
- (c) a nucleic acid sequence that encodes an amino acid sequence that has at least 75% identity to SEQ ID NO:10, wherein said identity can be determined using the DNAsis computer program and default parameters;

AMENDMENT

Serial Number: Unknown

Page 4

Dkt: 900.175US2

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

(d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:10; and
(e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

A2
cont'd
66
90. A plant cell comprising an isolated nucleic acid molecule of claim *89* ^{*65*}.

file
1.12.6
67
91. A seed comprising an isolated nucleic acid molecule of claim *89* ^{*65*}.

68
92. A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim *89* ^{*65*}.

69
93. The isolated nucleic acid of claim *73* ^{*49*} or *74* ^{*50*}, wherein said nucleic acid molecule encodes at least a portion of a plant reverse transcriptase sequence and comprises a nucleic acid sequence selected from the group consisting of:

(a) a nucleic acid sequence that has at least 70% identity to SEQ ID NO:11, wherein said identity can be determined using the DNAsis computer program and default parameters;
(b) a nucleic acid sequence having SEQ ID NO:11;
(c) a nucleic acid sequence that encodes an amino acid sequence that has at least 79% identity to SEQ ID NO:12, wherein said identity can be determined using the DNAsis computer program and default parameters;

(d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:12; and
(e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

70
94. A plant cell comprising an isolated nucleic acid molecule of claim *93* ^{*69*}.

71
95. A seed comprising an isolated nucleic acid molecule of claim *93* ^{*69*}.

AMENDMENT

Serial Number: Unknown

Page 5

Dkt: 900.175US2

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

72

96.

A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁶⁹93.

73

97.

The isolated nucleic acid of claim ⁴⁹73 or ⁵⁰74, wherein said nucleic acid molecule encodes at least a portion of a plant RNaseH sequence and comprises a nucleic acid sequence selected from the group consisting of:

- (a) a nucleic acid sequence that has at least 70% identity to SEQ ID NO:15, wherein said identity can be determined using the DNAsis computer program and default parameters;
- (b) a nucleic acid sequence having SEQ ID NO:15;
- (c) a nucleic acid sequence that encodes an amino acid sequence that has at least 90% identity to SEQ ID NO:16, wherein said identity can be determined using the DNAsis computer program and default parameters;
- (d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:16; and
- (e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

74

98.

A plant cell comprising an isolated nucleic acid molecule of claim ⁷³97.

75

99.

A seed comprising an isolated nucleic acid molecule of claim ⁷³97.

76

100.

A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁷³97.

77

101.

The isolated nucleic acid of claim ⁴⁹73 or ⁵⁰74, which further encodes at least one agronomically-significant characteristic selected from the group consisting of male sterility, self-incompatibility, foreign organism resistance, an improved biosynthetic pathway, environmental tolerance, a photosynthetic pathway, fruit ripening, oil biosynthesis, pigment biosynthesis, seed formation, starch metabolism, salt tolerance, cold/frost tolerance, drought tolerance, and tolerance to anaerobic conditions.

AMENDMENT

Serial Number: Unknown

Page 6

Dkt: 900.175US2

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

78

A2 control
~~102.~~ A method to impart agronomically significant characteristics to a plant, comprising contacting the nucleic acid of claim ⁷⁷101 with at least one plant cell under conditions sufficient to allow said nucleic acid to enter said cell.

79

bulk 1.1.26
~~103.~~ An isolated nucleic acid that encodes a plant retroviral polypurine tract and that comprises SEQ ID NO:3, or a nucleic acid sequence fully complementary to SEQ ID NO:3.

80

~~104.~~ A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁷⁹103.

81

~~105.~~ A seed comprising the isolated nucleic acid of claim ⁷⁹103.

82

~~106.~~ A plant comprising the isolated nucleic acid of claim ⁷⁹103.

83

~~107.~~ The plant of claim ⁸²106, which plant is soybean; maize; sugar cane; beet; tobacco; wheat; barley; poppy; rape; sunflower; alfalfa; sorghum; rose; carnation; gerbera; carrot; tomato; lettuce; chicory; pepper; melon; cabbage; oat; rye; cotton; flax; potato; pine; walnut; citrus; hemp; oak; rice; petunia; orchids; Arabidopsis; broccoli; cauliflower; brussel sprouts; onion; garlic; leek; squash; pumpkin; celery; pea; bean; strawberries; grapes; apples; pears; peaches; banana; palm; cocoa; cucumber; pineapple; apricot; plum; sugar beet; lawn grasses; maple; triticale; safflower; peanut; or olive.

84

~~108.~~ The plant of claim ⁸²106, which is soybean.

85

~~109.~~ The isolated nucleic acid of claim ⁷⁹103, which further comprises gag, pol and env genes and which comprises adenine-thymidine-guanidine as the gag gene start codon.

86

~~110.~~ The isolated nucleic acid of claim ⁷⁹103, which further comprises SEQ ID NO:4.

AMENDMENT

Serial Number: Unknown

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

Page 7

Dkt: 900.175US2

87

111.

A plant cell comprising an isolated nucleic acid molecule of claim ⁸⁶110.

88

112.

A seed comprising an isolated nucleic acid molecule of claim ⁸⁶110.

89

113.

A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁸⁶110.

90

114.

The isolated nucleic acid of claim ⁷⁹103, wherein said nucleic acid encodes at least a portion of a plant envelope sequence and comprises a nucleic acid sequence selected from the group consisting of:

(a) a nucleic acid sequence that has at least 50% identity to SEQ ID NO:5, wherein said identity can be determined using the DNAsis computer program and default parameters;

(b) a nucleic acid sequence having SEQ ID NO:5;

(c) a nucleic acid sequence that encodes an amino acid sequence that has at least 30% identity to SEQ ID NO:6, wherein said identity can be determined using the DNAsis computer program and default parameters;

(d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:6; and

(e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

91

115.

A plant cell comprising an isolated nucleic acid molecule of claim ⁹⁰114.

92

116.

A seed comprising an isolated nucleic acid molecule of claim ⁹⁰114.

93

117.

A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁹⁰114.

AMENDMENT

Serial Number: Unknown

Page 8

Dkt: 900.175US2

Title: PLANT RETROELEMENTS AND METHODS RELATED THERETO

94
118. The isolated nucleic acid of claim ⁷⁹103, wherein said nucleic acid encodes at least a portion of a plant integrase sequence and comprises a nucleic acid sequence selected from the group consisting of:

- A2
control
1.126
- (a) a nucleic acid sequence that has at least 70% identity to SEQ ID NO:9, wherein said identity can be determined using the DNAsis computer program and default parameters;
 - (b) a nucleic acid sequence having SEQ ID NO:9;
 - (c) a nucleic acid sequence that encodes an amino acid sequence that has at least 75% identity to SEQ ID NO:10, wherein said identity can be determined using the DNAsis computer program and default parameters;
 - (d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:10; and
 - (e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

95
119. A plant cell comprising an isolated nucleic acid molecule of claim ⁹⁴118.

96
120. A seed comprising an isolated nucleic acid molecule of claim ⁹⁴118.

97
121. A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁹⁴118.

98
122. The isolated nucleic acid of claim ⁷⁹103, wherein said nucleic acid molecule encodes at least a portion of a plant reverse transcriptase sequence and comprises a nucleic acid sequence selected from the group consisting of:

- (a) a nucleic acid sequence that has at least 70% identity to SEQ ID NO:11, wherein said identity can be determined using the DNAsis computer program and default parameters;
- (b) a nucleic acid sequence having SEQ ID NO:11;
- (c) a nucleic acid sequence that encodes an amino acid sequence that has at least 79% identity to SEQ ID NO:12, wherein said identity can be determined using the DNAsis computer program and default parameters;

(d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:12; and
(e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

⁹⁹
123. A plant cell comprising an isolated nucleic acid molecule of claim ⁹⁸122.

¹⁰⁰
124. A seed comprising an isolated nucleic acid molecule of claim ⁹⁸122.

¹⁰¹
125. A vector that can transfer a nucleic acid to a plant cell comprising the isolated nucleic acid of claim ⁹⁸122.

¹⁰²
126. The isolated nucleic acid of claim ⁷⁹103, wherein said nucleic acid molecule encodes at least a portion of a plant RNaseH sequence and comprises a nucleic acid sequence selected from the group consisting of:

(a) a nucleic acid sequence that has at least 70% identity to SEQ ID NO:15, wherein said identity can be determined using the DNAsis computer program and default parameters;

(b) a nucleic acid sequence having SEQ ID NO:15;

(c) a nucleic acid sequence that encodes an amino acid sequence that has at least 90% identity to SEQ ID NO:16, wherein said identity can be determined using the DNAsis computer program and default parameters;

(d) a nucleic acid sequence that encodes amino acid sequence SEQ ID NO:16; and

(e) a nucleic acid sequence fully complementary to a nucleic acid sequence selected from the group consisting of: a nucleic acid sequence of (a); a nucleic acid sequence of (b); a nucleic acid sequence of (c); a nucleic acid sequence of (d); and a nucleic acid sequence of (e).

¹⁰³
127. A plant cell comprising an isolated nucleic acid molecule of claim ¹⁰²126.

¹⁰⁴
128. A seed comprising an isolated nucleic acid molecule of claim ¹⁰²126.